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Honorable Ruben S. Ayala, Chairperson  
Senate Committee on Agriculture  
and Water Resources  
State Capitol, Room 2082  
Sacramento, CA 95814

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Honorable Dan McCorquodale, Chairperson  
Senate Natural Resources and Wildlife Committee  
State Capitol, Room 4048  
Sacramento, CA 95814

Honorable Jim Costa, Chairperson  
Assembly Committee on Water, Parks, and Wildlife  
State Capitol, Room 2158  
Sacramento, CA 95814

Honorable Byron D. Sher, Chairperson  
Assembly Natural Resources Committee  
State Capitol, Room 2136  
Sacramento, CA 95814

Gentlemen:

The attached summary of a study of possible changes to the Hetch Hetchy Reservoir system has been prepared in compliance with Assembly Bill 645, Chapter 1366 of the Statutes of 1987.

AB 645 requires the Department of Water Resources to assess the economic and environmental impacts of removing O'Shaughnessy Dam on the Tuolumne River or modifying operational measures for Hetch Hetchy Reservoir to provide water quality benefits by increasing freshwater flows to the Sacramento-San Joaquin Delta and San Francisco Bay.

After comparing the value of the existing facilities as a source of relatively inexpensive, pollution-free water and power with the difficulty and potential costs of removing O'Shaughnessy Dam and constructing necessary replacement water and power facilities, DWR has concluded that O'Shaughnessy Dam should not be removed.

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If you need further information or would like to discuss our conclusions, please call me at (916) 445-6582 or have your staff call James McDaniel, Chief of the Division of Local Assistance at (916) 327-1632.

Sincerely,

(sgd) David N. Kennedy

David N. Kennedy  
Director

Attachment

bcc: Honorable Gordon K. Van Vleck  
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## HETCH HETCHY RESERVOIR STUDY

This summary of a study of possible changes to the Hetch Hetchy reservoir system has been prepared in compliance with Assembly Bill 645, Chapter 1366 of the Statutes of 1987.

AB 645 requires the Department of Water Resources to assess the economic and environmental impacts of removing O'Shaughnessy Dam on the Tuolumne River or modifying operational measures for Hetch Hetchy Reservoir to provide water quality benefits by increasing freshwater flows to the Sacramento-San Joaquin Delta and San Francisco Bay.

### Summary

Based on examination of available information, DWR has concluded that O'Shaughnessy Dam should not be removed. This conclusion is based on the value of the existing facilities as a source of relatively inexpensive, pollution-free water and power as compared with the difficulty and potential costs of removing O'Shaughnessy Dam and constructing necessary replacement water and power facilities.

The total economic value of water and power losses that would result from removal of O'Shaughnessy Dam cannot be determined without an extensive study. The same is true of modifying the operation of Hetch Hetchy Reservoir to benefit water quality and freshwater flows in the Sacramento-San Joaquin Delta and San Francisco Bay.

### Background

AB 645 was passed in late 1987, at a time of high interest in the City of San Francisco's Hetch Hetchy Project. This interest was generated by a proposal from then Interior Secretary Donald Hodel. He proposed removing O'Shaughnessy Dam and restoring Hetch Hetchy Valley to its former natural environment as a way to increase the environmental and recreational values of Yosemite National Park.

Reaction to Secretary Hodel's proposal has ranged from outrage by San Francisco's political leaders and water users to amusement by many water officials. The amusement arises from the irony of the situation since, in the view of many water managers, San Franciscans have criticized other water projects throughout the State while ignoring their own city's environmental transgressions.

Most water engineers tend to view the proposal as impractical, not only because of the cost to dismantle the Dam and develop a new water supply for San Francisco, but also because of the large amount of relatively cheap, pollution-free hydroelectric energy produced by the project. On the other hand, one concern over



Secretary Hodel's motives was reduced by his subsequent statements, some environmentalists showed enthusiastic approval for the idea.

Secretary Hodel's proposal motivated the U. S. Department of the Interior, the U. S. Department of Energy, and the California Assembly Office of Research to begin preliminary studies and prepare reports on the Hetch Hetchy Project. Each of these reports emphasizes different aspects of the Hetch Hetchy situation. Although the reports are all based on research of existing information and contain no new work, together they provide a useful background on Hetch Hetchy. Each of these reports is discussed below.

### U. S. Department of the Interior Report

In keeping with Secretary Hodel's interest in the subject, the Bureau of Reclamation prepared a report on behalf of the National Park Service. This report, "Hetch Hetchy: A Survey of Water and Power Replacement Concepts", was published in February 1988. The report focuses largely on replacement concepts for water and power, and the work presented is of a preliminary, cursory nature.

The report presents figures on water deliveries to San Francisco and the other Bay Area communities that receive Hetch Hetchy water. An appendix includes comments, both pro and con, received from agencies, organizations, and individuals responding to Secretary Hodel's proposal.

The report concludes that the information presented makes a case for a feasibility study to determine actual costs and benefits of dismantling O'Shaughnessy Dam. However, the \$3 million to \$5 million needed for the feasibility study was not appropriated at the time, and the current Secretary of the Interior has shown no interest in continuing efforts to fund the study.

### U.S. Department of Energy Report

Not all Federal cabinet members were favorably disposed toward Secretary Hodel's proposal. John Herrington, who was then Secretary of Energy, opposed the plan and instructed his department to study the issue.

In early January 1988, the Department of Energy produced a report, "Hetch Hetchy: Striking a Balance". This report was published largely as a response to a draft of the report by the Department of the Interior. The Department of Energy report contains a worthwhile discussion of the history, development, and

operation of the Hetch Hetchy system. The report also has sections on environmental, water replacement, power replacement, and economic issues.

The report concludes that, at present, the existing Hetch Hetchy Reservoir is more valuable than a restored Hetch Hetchy Valley. The report recommends that thorough evaluation of costs and benefits of trading the Hetch Hetchy system for a restored Hetch Hetchy Valley be delayed until near the end of the system's useful life.

#### Assembly Office of Research Report

The Legislature's interest in the subject continued after passage of AB 645, and in June 1988 the Assembly Office of Research published "Restoring Hetch Hetchy". This report also discusses development and operation of the Hetch Hetchy system, but it expands on this by including a number of photos of the Hetch Hetchy area before and after dam construction. The report also discusses possibilities and limitations of recreational development in the Hetch Hetchy area under existing and restored conditions. A brief discussion of the Department of the Interior's replacement concepts is also included.

The Assembly Office of Research concluded that, notwithstanding the great esthetic and recreational value of a restored Hetch Hetchy Valley, as a key element of the best municipal water supply system in the State, the current reservoir is more valuable.

The report also suggests that, from a recreational standpoint, the money necessary to restore Hetch Hetchy could serve more effectively if spent on improvements in Yosemite Park. The report lists several projects to improve access that could improve a visitor's enjoyment of Yosemite Park while controlling pollution and congestion.



Conclusions of the  
Department of Water Resources

The Department has concluded that O'Shaughnessy Dam should not be removed. The Hetch Hetchy Project was authorized by Congress after considerable public and legislative debate. While the debate continues to this day, alternative development opportunities have become much more limited and of much greater cost.

The Hetch Hetchy system is one of several water importation systems that bring water to the San Francisco Bay Area. Figures 1 and 2 show the Hetch Hetchy Project and the San Francisco Water Department System. The system delivers water to the City of San Francisco plus many communities in Alameda, Santa Clara, and San Mateo Counties. A list of agencies that purchase water from San Francisco is shown on Table 1. While there are some local water sources San Francisco Water District provides approximately 80 per cent to 95 per cent of the water used by the 2,200,000 people living in the service area.

The Department has the necessary expertise and computer modeling capability to determine the effects on the Bay Area water supply and Delta water quality that would be brought about by removal or change in operation of O'Shaughnessy Dam, but such studies would require substantial funding and time. Boundaries of the Delta models used by the Department are the cities of Sacramento to the north, Vernalis to the south, and Benicia to the west, and the models are not designed to simulate operation of upstream storage reservoirs. Therefore, it would be necessary to modify existing relationships between flow and salinity at Vernalis to reflect removal of O'Shaughnessy Dam or modified operations at Hetch Hetchy Reservoir.

Without these extensive computer studies, the Department can quantify neither the water and power losses nor the water quality impacts that would result from loss of storage capacity at Hetch Hetchy Reservoir. The Department can, however, make two statements as to the impacts of removing O'Shaughnessy Dam:

1. About 360,000 acre-feet of reservoir storage capacity would be lost from the Hetch Hetchy system. This is 55 percent of the capacity in the three storage reservoirs in the Hetch Hetchy System.
2. A minimum of 75 megawatts of generating capacity and 615,000,000 kilowatt-hours of energy generated at Kirkwood Power Plant would be lost. This is about 31 percent of the average annual generation of the whole Hetch Hetchy system.

Table 1  
San Francisco Water District  
Suburban Water Contractors

Alameda County Water District  
Belmont County Water District  
City of Brisbane  
City of Burlingame  
California Water Service - Bear Gulch District  
California Water Service - San Carlos District  
California Water Service - San Mateo District  
California Water Service - South San Francisco  
Coastside County Water District  
Cordilleras Mutual Water District  
City of Daly City  
East Palo Alto County Water Works District  
Estero Muni Improvement District  
Guadalupe Valley Muni Improvement District  
City of Hayward  
Town of Hillsborough  
Los Trancos Water District  
City of Menlo Park  
City of Millbrae  
City of Milpitas  
City of Mountain View  
North Coast Co. Water District  
City of Palo Alto  
Purrrissima Hills Water District  
City of Redwood City  
City of San Bruno  
City of San Jose  
San Mateo County Water Works Distirct  
City of Santa Clara  
Skyline County Water District  
Stanford University  
City of Sunnyvale  
Westborough County Water District

# PROJECT FACILITIES

